

Appl. No. 10/598,844
Amdt. Dated: March 23, 2009
Reply to Office action of December 18, 2008

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently amended): An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;
and

a post for retaining the micro-vibrator,
wherein the physical property of the micro-vibrator changes
in accordance with a crystal structural change of the micro-
vibrator when excited so as to select a signal.

Claim 2 (Cancelled):

Claim 3 (Previously presented): The electromechanical signal selection device according to claim 1, wherein the physical property is an electric conduction characteristic.

Claim 4 (Currently amended): ~~The electromechanical signal selection device according to claim 1,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;
and

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a post for retaining the micro-vibrator,
wherein the physical property of the micro-vibrator changes
when excited so as to select a signal, and

wherein the micro-vibrator is retained by an electrode
placed on the post.

Claim 5 (Original): The electromechanical signal selection device
according to claim 4, wherein a bonded surface between the
electrode and the micro-vibrator is located at a distance from
the post.

Claim 6 (Original): The electromechanical signal selection device
according to claim 1, wherein the post comprises a structure
having lower rigidity than that of the micro-vibrator.

Claim 7 (Original): The electromechanical signal selection device
according to claim 1, wherein the micro-vibrator comprises a
multilayer structure of at least two layers including a material
layer generating the change in physical property and a conductor
layer.

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Claim 8 (Currently amended): ~~The electromechanical signal selection device according to claim 7,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;

and

a post for retaining the micro-vibrator,

wherein the physical property of the micro-vibrator changes when excited so as to select a signal,

wherein the micro-vibrator comprises a multilayer structure of at least two layers including a material layer generating the change in physical property and a conductor layer,

wherein the conductor is formed to be linear, and

wherein the material layer generating the change in physical property is formed around the linear conductor layer.

Claim 9 (Original): The electromechanical signal selection device according to claim 7, wherein the material layer generating the change in physical property is formed on the side where an electric field of a signal is concentrated.

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Claim 10 (Currently amended): ~~The electromechanical signal selection device according to claim 9,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;

and

a post for retaining the micro-vibrator,

wherein the physical property of the micro-vibrator changes when excited so as to select a signal,

wherein the micro-vibrator comprises a multilayer structure of at least two layers including a material layer generating the change in physical property and a conductor layer,

wherein the material layer generating the change in physical property is formed on the side where an electric field of a signal is concentrated, and

wherein the material layer generating the change in physical property is formed under the substrate side of the conductor layer.

Claim 11 (Currently amended): ~~The electromechanical signal selection device according to claim 7,~~ An electromechanical signal selection device comprising:

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a micro-vibrator which can be excited by an input signal;
and
a post for retaining the micro-vibrator,
wherein the physical property of the micro-vibrator changes
when excited so as to select a signal,
wherein the micro-vibrator comprises a multilayer structure
of at least two layers including a material layer generating the
change in physical property and a conductor layer, and
wherein half the radius of the conductor is not larger than
skin depth of a high frequency signal.

Claim 12 (Original): The electromechanical signal selection device according to claim 1, wherein the micro-vibrator comprises perovskite type transition metal oxide.

Claim 13 (Original): The electromechanical signal selection device according to claim 12, wherein the perovskite type transition metal oxide is PrNiO_3 showing metal-insulator transition.

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Claim 14 (Original): The electromechanical signal selection device according to claim 1, wherein the micro-vibrator comprises a piezoresistive effect material.

Claim 15 (Original): The electromechanical signal selection device according to claim 14, wherein the micro-vibrator comprises at least one of Si, $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ and BaTiO_3 .

Claim 16 (Original): The electromechanical signal selection device according to claim 1, wherein the micro-vibrator comprises a superconductor.

Claim 17 (Original): The electromechanical signal selection device according to claim 16, wherein the superconductor is one of Al, Pb, $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ and $(\text{BEDTTTF})_2\text{I}_3$.

Claim 18 (Original): The electromechanical signal selection device according to claim 1, wherein the micro-vibrator comprises a carbon-based material.

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Claim 19 (Original): The electromechanical signal selection device according to claim 1, wherein the input signal is supplied through an electrode provided in the micro-vibrator.

Claim 20 (Currently amended): ~~The electromechanical signal selection device according to claim 1,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;

and

a post for retaining the micro-vibrator,

wherein the physical property of the micro-vibrator changes when excited so as to select a signal, and

wherein the input signal is supplied through a driving electrode disposed adjacently to the micro-vibrator.

Claim 21 (Previously presented): The electromechanical signal selection device according to claim 20, wherein an external force to be applied to the driving electrode is an electrostatic force.

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Claim 22 (Currently amended): ~~The electromechanical signal selection device according to claim 1,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;
and
a post for retaining the micro-vibrator,
wherein the physical property of the micro-vibrator changes
when excited so as to select a signal, and

wherein a mechanism for applying an external magnetic field to the micro-vibrator is provided to excite the micro-vibrator due to a Lorentz force.

Claim 23 (Currently amended): ~~The electromechanical signal selection device according to claim 1,~~ An electromechanical signal selection device comprising:

a micro-vibrator which can be excited by an input signal;
and
a post for retaining the micro-vibrator,
wherein the physical property of the micro-vibrator changes
when excited so as to select a signal, and

wherein a mechanism for applying an external magnetic field is provided in a driving electrode or a signal input electrode

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disposed adjacently to the micro-vibrator so as to excite vibration of the micro-vibrator in a desired direction.

Claim 24 (Original): The electromechanical signal selection device according to claim 1, wherein the change in physical property is caused by piezoelectric effect.

Claim 25 (Original): The electromechanical signal selection device according to claim 24, wherein the micro-vibrator is designed to generate a signal by virtue of the piezoelectric effect when the micro-vibrator is excited to produce a structural change.

Claim 26 (Original): The electromechanical signal selection device according to claim 1, wherein the micro-vibrator comprises ceramics.

Claim 27 (Original): The electromechanical signal selection device according to claim 26, wherein the micro-vibrator comprises PZT.